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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/801,267	03/16/2004	Rocco DiFoggio	584-37008-USCP	4720
24923	7590	02/10/2006	EXAMINER	
PAUL S MADAN MADAN, MOSSMAN & SRIRAM, PC 2603 AUGUSTA, SUITE 700 HOUSTON, TX 77057-1130			KUNDU, SUJOY K	
			ART UNIT	PAPER NUMBER
			2863	

DATE MAILED: 02/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/801,267	Applicant(s) DIFOGGIO ET AL.	
	Examiner Sujoy K. Kundu	Art Unit 2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-12,14-20 and 31-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-12,14-20 and 31-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1, 11, 31 is rejected under 35 U.S.C. 102(b) as being anticipated by Birchak et al. (5,741,962).

Birchak teaches the features of the claims for determining a property of a fluid downhole comprising:

a resonator associated with the fluid downhole (Fig. 2, 109);

a controller which actuates the resonator (Column 4, Lines 12-22);

a processor which estimates the property for the fluid downhole (Column 4, Lines 12-22).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2, 4, 12, 14, 32-34, 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Birchak et al. (5,741,962) in view of Kleinberg (6,346,813).

With regards to claim 2,12 Birchak does not teach wherein the processor uses a chemometric equation for estimating the property. However, Kleinberg teaches an apparatus wherein the processor uses a chemometric equation for estimating the property (Figure 5, Column 7, Lines 23-35). A view of Figure 5 of Kleinberg shows generally excellent correlation between T_2 and viscosity. Knowing the measured data, as shown in the example of Figure 5, one could determine the curve associated with the fit of the data. From subsequent measurements of T_2 one could then use the curve to determine an estimate of the viscosity. Therefore, the curve merely represents a "chemometric" equation for the parameter T_2 and can be used to determine viscosity is and NMR times T_1 and T_2 are correlated.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the processor uses a chemometric equation for estimating the property as taught by Kleinberg into Birchak for the purpose of determining a fluid property.

With regards to claim 33 Birchak does not teach the downhole tool, wherein the processor applies the resonator response to the chemometric equation to determine the property. However, Kleinberg teaches the downhole tool, wherein the processor applies the resonator response to the chemometric equation to determine the property (Figure 5, Column 11, Lines 1-21). A view of Figure 5 of Kleinberg shows generally excellent correlation between T_2 and viscosity. Knowing the measured data, as shown in the example of Figure 5, one could determine the curve associated with the fit of the data. From subsequent measurements of T_2 one could then use the curve to determine an

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estimate of the viscosity. Therefore, the curve merely represents a "chemometric" equation for the parameter T_2 and can be used to determine viscosity is and NMR times T_1 and T_2 are correlated.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the processor uses a chemometric equation for estimating the property as taught by Kleinberg into Birchak for the purpose of determining a fluid property.

With regards to claim 4, 14, 34 Birchak does not teach wherein the processor uses a function for deriving a chemometric equation from measured resonator response correlated with known fluid property values (Figure 5, Column 7, Lines 23-35). A view of Figure 5 of Kleinberg shows generally excellent correlation between T_2 and viscosity. Knowing the measured data, as shown in the example of Figure 5, one could determine the curve associated with the fit of the data. From subsequent measurements of T_2 one could then use the curve to determine an estimate of the viscosity. Therefore, the curve merely represents a "chemometric" equation for the parameter T_2 and can be used to determine viscosity is and NMR times T_1 and T_2 are correlated.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the processor uses a chemometric equation for estimating the property as taught by Kleinberg into Birchak for the purpose of determining a fluid property.

Claims 5-8, 15-18, 35-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Birchak et al. (5,741,962) in view of Kleinberg (6,346,813) as applied to claim 1 above, and further in view of McFarland et al (6,182,499).

With regards to claims 5-8, 15-18, 35-38 Birchak and Kleinberg do not teach wherein the properties are viscosity, density, dielectric constant, and resistivity. However, McFarland teaches wherein the properties are viscosity, density and dielectric constant (Column 11, Lines 42-48).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include wherein the properties are viscosity, density, dielectric constant, and resistivity as taught by McFarland into Birchak and Kleinberg for the purpose of determining a system and method for determining formation of fluids.

Claims 9-10, 19-20, 39-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Birchak et al. (5,741,962) in view of Kleinberg (6,346,813) and McFarland et al (6,182,499) as applied to claim 1 above, and further in view of He et al (5,798,982).

With regards to claim 9-10, 19-20, and 39-40, Birchak, Kleinberg, and McFarland do not teach the apparatus wherein the processor applies the chemometric estimated property to a Levenberg-Marquardt (LM) algorithm to determine a fluid parameter value for the fluid.

However, He teaches the apparatus wherein the processor applies the chemometric estimated property to a Levenberg-Marquardt (LM) algorithm to determine a fluid parameter value for the fluid (Column 2, Lines 48-65).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the apparatus wherein the processor applies the chemometric estimated property to a Levenberg-Marquardt (LM) algorithm to determine a fluid parameter value for the fluid as taught by He into Birchak, Kleinberg, and McFarland for the purpose of determining a system and method for determining formation of fluids.

Claims 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Birchak et al. (5,741,962) in view of Kleinberg (6,346,813) McFarland et al (6,182,499) and He et al (5,798,982), as applied to claim 1 above, and further in view of Netzer (5,763,781).

With regards to Claim 41, Birchak, Kleinberg, McFarland, and He does not teach the apparatus wherein the resonator comprises a mechanical resonator.

However, Netzer teaches the apparatus wherein the resonator comprises a mechanical resonator (Column 2, Lines 28-35).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the apparatus wherein the resonator comprises a mechanical resonator as taught by Netzer into Birchak, Kleinberg, McFarland, and He for the purpose of providing an improved rate sensor (Column 2, Lines 46-47).

With regards to Claim 42, Birchak, Kleinberg, McFarland, and He does not teach the apparatus wherein the resonator comprises a tuning fork.

However, Netzer teaches the apparatus wherein the resonator comprises a tuning fork (Column 2, Lines 28-35).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the apparatus wherein the resonator comprises a tuning fork as taught by Netzer into Birchak, Kleinberg, McFarland, and He for the purpose of providing an improved rate sensor (Column 2, Lines 46-47).

Response to Arguments

Applicant's arguments filed January 23, 2006 have been fully considered but they are not persuasive. Applicant is reminded that during patent examination, the pending claims must be "given the broadest reasonable interpretation consistent with the specification." Applicant always has the opportunity to amend the claims during prosecution, and broad interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified. In re Prater, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-51 (CCPA 1969).

While the meaning of claims of issued patents are interpreted in light of the specification, prosecution history, prior art and other claims, this is not the mode of claim interpretation to be applied during examination. During examination, the claims must be interpreted as broadly as their terms reasonably allowed. This means that the words of the claim must be given their plain meaning unless applicant has provided a clear definition in the specification. In re Zletz, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989). In this instance applicant argues that the prior art of record, Birchak, does not teach or suggest the use of a resonator. Examiner respectfully disagrees with applicant as Birchak does teach the use of a resonator. According to Webster's Ninth New Collegiate Dictionary, the word resonator means something that

resounds or resonates. The transducer 108 may be used as an acoustic signal transmitter or a receiver (Column 5, Lines 28-32) is deemed to resonate.

Claims 41 and 42 are addressed above.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sujoy K. Kundu whose telephone number is 571-272-8586. The examiner can normally be reached on M-F 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on 571-272-2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SKK
02/06/2006

BRYAN BUI
PRIMARY EXAMINER

A handwritten signature in black ink, appearing to read 'B. Bui', is written below the printed name and title.